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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/079,864	05/15/1998	JASON P. RHODE	0600-CS	8805

7590

02/04/2002

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EXAMINER

GRIER, LAURA A

ART UNIT

PAPER NUMBER

2644

DATE MAILED: 02/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/079,864

Applicant(s)

RHODE ET AL.

Examiner

Laura A Grier

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-21 and 25-30 is/are rejected.
- 7) ☒ Claim(s) 8, 9 and 22-24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2644

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, 10, 17 and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art in view of Hsu, U. S. Patent No. 4249095.

Regarding **claims 1, 10, 17, and 25**, the applicant's admitted prior art discloses an audio source producing left and right audio signals; a power amplifier, indicative of drive circuitry coupled to the audio input signals, comprising a left and right output signal. However, the applicant's admitted prior art fails to specifically disclose the amplifier comprising a common mode output. The examiner maintains that such an amplifier was well known in the art.

Regarding the driving circuitry comprising a common mode output, Hsu discloses a comparator sense amplifier. Hsu's disclosure comprises a quasi-differential amplifier that includes a common mode output signal (col. 1, lines 47-61), indicative of a common mode output dependent upon the input signals.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of the applicant's admitted prior art by

providing an amplifier and/or driving circuitry with a common mode output signal for the purpose of producing an additive output signal; wherein in modification the concept of reducing clipping effects is inherently taught.

Regarding **claims 2, 11, 18, and 26**, the applicant's admitted prior art and Hsu (hereinafter, Hsu et al.) discloses everything claimed as applied above (see the rejection above). Hsu further discloses support of a regenerative feedback loop which constitute for the output of the input signal being dependent of the common mode out for the purpose of conditioning the amplifier (col. 2, lines 10-16).

Regarding **claims 3, 16, 27 and 30**, Hsu et al. discloses everything claimed as applied above (see the rejection above). The applicant's admitted prior further discloses the first and second input signals as left and right channel audio signals, wherein the inputs are coupled to a power amplifier of a pair stereo headphones with a three wire connection.

Regarding **claim 28**, Hsu et al. discloses everything claimed as applied above (see claim 27). The applicant's admitted prior further discloses the system having a digital-to-analog converter (DAC).

Regarding **claim 29**, Hsu et al. discloses everything claimed as applied above (see claim 27). However, Hsu et al. fails to specifically disclose the digital to analog conversion as claimed. The technique of converting a digital signal to an analog signal was well known. Thus, it would have been obvious to one of the ordinary skill in the art at the time of the invention at the time the invention was made to modify the invention of Hsu et al. by providing a DAC for converting the digital signal to an analog signal prior to

audio output, wherein the technique of using DAC or ADC is a well known in the art of audio signal processing.

Regarding **claim 4**, Hsu et al. discloses everything claimed as applied above (see the rejection above). The applicant's admitted prior further discloses a portable stereo system, indicative of a portable audio system.

3. **Claims 6, 12-14 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over the Hsu et al. and further in view of Tran, U. S. Patent No. 5631606.

Regarding **claims 6, 12, 14, and 19**, Hsu et al. disclose everything claimed as applied above. The applicant's admitted further discloses a first and a second amplifier for amplifying the first and second signal. However, Hsu et al. fail to specifically disclose a third amplifier driving the common mode output signal. The examiner maintains that such an amplifier was well known in the art.

Regarding the third amplifier, in a similar field of endeavor, Tran discloses a fully differential output CMOS power amplifier for use in audio device. Tran's disclosure comprises a common mode feedback amplifier, indicative of a third amplifier (col. 6, lines 13-19).

It would have been obvious to one of the ordinary skill in the art at the time invention was made to modify the invention of Hsu et al. by incorporating a third amplifier for the purpose amplifying the common mode output signal and for reasons taught by Tran.

Regarding **claim 13**, Hsu et al. and Tran (hereinafter, Hsu-Tran) discloses everything claimed as applied above (see claim 12). Tran provide support of the third amplifier being coupled as input to the first and second amplifiers (col. 6, lines 13-19 and col. 53-56).

Regarding **claim 7**, Hsu-Tran discloses everything claimed as applied above (see claim 6). The claimed limitation is inherently taught in the rejection above.

Regarding **claims 20, and 21**, Hsu et al. discloses everything claimed as applied above (see the rejection above). The applicant's admitted prior further discloses the first and second input signals as left and right channel audio signals and as digital signals.

#### ***Allowable Subject Matter***

4. **Claims 8-9, and 22-24** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Citation of Prior Art***

5. Prior art made of record and relied upon is considered pertinent to the applicant's disclosure.

Kokubo et al., U. S. Patent No. 5973555, discloses a power amplifier apparatus.

Du, U. S. Patent No. 5638030, discloses a high frequency differential vco with common biased clipper.

Lucey, U. S. Patent No. 5396551, discloses a headset amplifier.

**Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A Grier whose telephone number is (703) 306-4819. The examiner can normally be reached on Monday - Friday, 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231


**Or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

LAG   
December 16, 2001

  
FORESTER W. ISEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2644